Annual

Water Quality Report

Water testing performed in 2010

Presented By

Harrisonburg VA
Public Utilities

PWS ID#: VA2660345

Quality First

Once again we are proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2010. As in years past, we are committed to delivering the best-quality drinking water possible. To that end, we remain vigilant in meeting the challenges of new regulations, source water protection, water conservation, and community outreach and education while continuing to serve the needs of all of our water users. Thank you for allowing us to continue providing you and your family with high-quality drinking water.

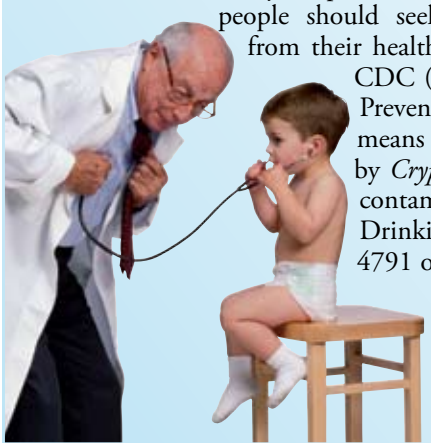
We encourage you to share your thoughts with us on the information contained in this report. Should you ever have any questions or concerns, we are always available to assist you.

Source Water Assessment

A Source Water Assessment for the City of Harrisonburg was completed by the Virginia Department of Health on May 24, 2002. This assessment determined that the city's water sources, North River and Dry River, are surface waters exposed to a wide array of changing hydrologic, hydraulic, and atmospheric conditions. More specific information may be obtained by contacting the Harrisonburg Director of Public Utilities, Michael Collins, at (540) 434-9959.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or www.epa.gov/drink/hotline/.



Community Participation

We encourage consumers to report all concerns regarding water quality. It is important that we recognize, investigate, and record each event. This information will be used to guide future operation strategies and capital improvements. Please report your concerns to (540) 434-9959.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Where Does My Water Come From?

The City of Harrisonburg has two reliable water supply sources. The Dry River in Rawley Springs is a surface water source. The watershed includes the Switzer Reservoir Impoundment, which can supply the piping network at capacity with 4 million gallons per day (except during drought) of highest-quality water at the most cost-effective price. The North River in Bridgewater is also a surface water source and provides up to 7.5 million gallons per day and 5.5 million gallons per day during drought. The water quantity and quality of the North River fluctuates due to runoff conditions at the withdrawal site. Because our treatment facility has the capacity to provide 15 million gallons of clean drinking water every day, we are in the process of developing a supply line from the South Fork Shenandoah River. Once this project has been completed, we expect to provide a supply of 15 million gallons per day to our customers.

Lead and Drinking Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Harrisonburg is responsible for providing high-quality drinking water, but we cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead. The City of Harrisonburg had only one of thirty-one samples indicate the presence of lead within a residential home. This is not a violation. Lead has not been detected within the source water from the City of Harrisonburg Water Treatment Plant.

MARKET ANALYSIS OF WATER AND SEWER RATES AMONG WATER SYSTEMS OF 10,000-30,000 RESIDENTIAL WATER UNITS 5,000 GALLONS WATER AND SEWER CONSUMPTION

UTILITY PROVIDER	RESIDENTIAL WATER UNITS	WATER $/5000 GAL	SEWER $/5000 GAL	W & S RATE $/5000 GAL
City of Fairfax	10,147	20.10	18.79	38.89
James City Service Authority	18,687	14.25	14.00	28.25
City of Harrisonburg	**11,019**	**13.08**	**23.20**	**35.28**
Spotsylvania County	26,705	21.75	21.56	43.31
City of Petersburg	10,105	10.17	19.33	29.50
Town of Leesburg	16,133	20.25	26.25	46.50
Frederick Co. Sanitation Auth.	12,639	24.68	30.01	54.69
City of Danville	15,394	17.54	30.25	47.79
City of Lynchburg	22,000	16.72	38.97	55.69
Town of Christiansburg	10,125	18.90	29.20	48.10
Henry County Public Service Auth	13,064	30.00	30.00	60.00
City of Salem	10,356	23.25	29.15	52.40
Augusta Co. Service Auth.	15,379	25.62	38.91	64.53
Albermarle Co Service Auth.	23,890	29.32	36.05	65.37
City of Charlottesville	12,579	37.50	32.25	69.75
Washington Co Service Auth.	20,500	33.06	52.02	85.08
Hanover County	18,370	19.00	39.06	58.06
City of Suffolk	21,747	41.53	30.15	71.68
Virginia Control Group	**N/A**	**25.00**	**31.03**	**56.03**

Courtesy of Draper Aden Associates 2010 Study

Questions?

If you have questions about this report or want additional information about the quality of your drinking water, please contact our Engineering Superintendent, David Gray, at (540) 434-9959. You may view updates of this report on our Web site: www.harrisonburgva.gov

Green Effort Leads to Lower Water Costs

The Harrisonburg Department of Public Utilities has engaged to meet today's challenge to be financially responsible and to also be an environmental steward by reducing its carbon footprint of tomorrow. Our goal has been set to make strategic improvements in water distribution so that our system assets use less electrical power. In this effort, we have initiated a trend of lowering our operating cost which ultimately trickles down to our consumers in the form of lower water rates. Our strategies target four major areas: reduce the water load, rethink system configuration, optimize the system components efficiencies, and react to the electric rate structure.

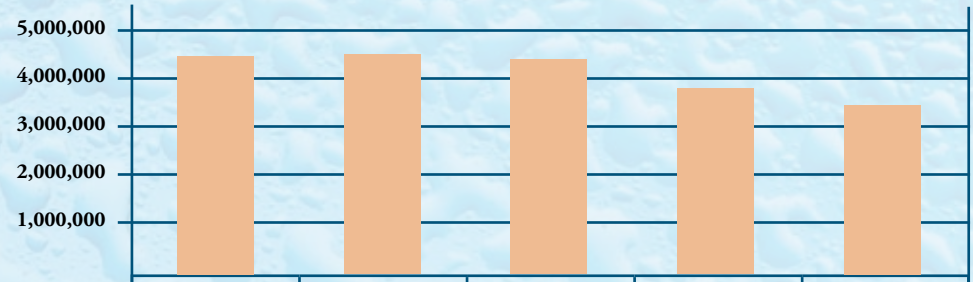
The first strategy is load reduction. "Pump no more water than you need to pump." In Harrisonburg's application, the water system has 9 independent zones. Each zone has a unique energy requirement. To reduce the energy load, we have moved some of our customers into a more efficient zone that can provide an appropriate level of service. A profound example of this water load reduction can be found in our western corridor. Not too long ago we operated 12" waterline; it was installed in the 1960's to convey untreated water from Dry River to our Water Treatment Plant. When we constructed a new 30" untreated waterline in a nearby location and route, an opportunity arose to change the 12" untreated waterline to an outgoing treated waterline. This move allowed us to reduce the pumping load on an adjacent 10" treated waterline by approximately 200,000 gallons per day. The run times on the pumps have decreased so there is now substantially less electricity used and the lifespan of the pumps have increased.

The second strategy is system configuration. "Pump against no more resistance that is justifiably necessary". The City's newly constructed Tower Street Tank, located on Vine Street, is a great example of this strategy. Prior to this construction, the City relied on pumps to lift water upward 61 feet into the neighboring Washington Street Tank. The newly constructed tank was designed with efficiency in mind as it maintains a higher water starting elevation and thereby only requires pumping to 6 to 16 feet to the reach the same destiny. This new system configuration will reduce the City's use of electricity and support our mission of developing a more ecologically friendly water system.

The third strategy is optimization of component efficiencies. "Shall we say put a round peg in a round hole, but in the concept of pump selection and application". In the case of the new water tank as discussed previously, we have also embarked upon changes to pump and motor units that were affected. The pump impellers were resized to provide a "best fit" condition. In addition, the 25 year old pump motors were replaced with premium efficiency units. With similar result as the previous strategies, this will also reduce the use of electricity for many years to come.

The fourth and final strategy is optimized use within the electrical rate structure. "Shall we say buy when low and refrain when high." Electrical companies provide incentives within their rate structure to encourage more use during the lower demand periods and less use during higher periods. This is a function of their generation and purchasing conditions; if the consumer can operate more in sync with the provider, then better costs and stewardships prevail. Harrisonburg Public Utilities seeks to capture these opportunities through best management practices and by enhancing the maturity of its computerized "Supervisory Control and Data Acquisition System" (SCADA).

In summary, our Harrisonburg Public Utilities have looked for ways to improve our services through the use of our assets. Although we are long from finished, we have begun to realize benefits through the reduction of electrical consumption. We have shown that our electrical consumption has decreased by 936,771 kilowatt hours per year (or by 21%) during the last 5 years. This reduction is equivalent to an annual savings of approximately $70,000/year or $0.035 per 1000 gallons to our customers. The City plans additional efforts to continue this mission in the future.



	2005–2006	2006–2007	2007–2008	2008–2009	2009–2010
KW hrs used	4,442,071	4,462,481	4,373,151	3,827,827	3,505,300

HARRISONBURG WATER AND SEWER EXPENSES AND SERVICES PROVIDED				
2009-2010 WATER AND SEWER ITEMIZATION OF EXPENSES	WATER FUND		SEWER FUND	
	COST PER 1000 GALS.	SERVICES PROVIDED	COST PER 1000 GALS.	SERVICES PROVIDED
ADMINISTRATION	$0.18	customer service administrative functions	$0.35	executive services, engineering services,
PUMPS, STORAGE, MONITORING	$0.26	water operations water maintenance	$0.08	sewer operations , sewer maintenance,
TRANSMISSION, COLLECTION, DISTRIBUTION	$0.35	support programs, repairs to water system, assist road paving, water system reliability, water system accountability, water system quality, equipment & vehicles, buildings and grounds, Miss Utility, assist other departments, new water services, construction,	$0.51	support programs, repairs to sewer system, assist road paving, sewer system reliability, I&I abatement, equipment & vehicles, buildings and grounds, Miss Utility, assist other departments, new sewer services, construction
UTILITY BILLING	$0.17	utility bills and accounting	$0.16	utility billing field services
MISCELLANEOUS	$0.23	equivalent taxes	$0.19	equivalent taxes
PURIFICATION OR TREATMENT	$0.47	water plant operations water plant maintenance	$1.47	HRRSA operations HRRSA maintenance
TOTAL OPERATING	**$1.66**		**$2.76**	
CAPITAL	$0.54	capital outlay capital repacements capital additions	$0.31	capital outlay capital repacements capital additions
TOTAL DEBT SERVICE	$0.38	raw water project debt storage tank debt	$1.35	HRRSA debt
TOTAL TRANSFERS	$0.45	support general fund	$0.49	support general fund
TOTAL WATER FUND	**$3.03**		**$4.91**	

Testing for *Cryptosporidium*

Cryptosporidium is a microbial pathogen found in surface water throughout the United States. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100 percent removal. During the 2010 sampling period, the City of Harrisonburg tested for but did not detect *Cryptosporidium* in its source waters. Current test methods do not allow us to determine if any organisms found are dead or if they are capable of causing disease. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immunocompromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immunocompromised individuals to consult their doctors regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The tables below show only those contaminants that were detected in the water. The state requires us to monitor for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES [1]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2010	2	2	0.028	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride[2] (ppm)	2010	4	4	0.97	0.0–1.12	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs][2] (ppb)	2010	60	NA	22	13–42	No	By-product of drinking water disinfection
Nitrate (ppm)	2010	10	10	0.48	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes][2] (ppb)	2010	80	NA	37	22–54	No	By-product of drinking water disinfection
Total Coliform Bacteria (% positive samples)	2010	5% of monthly samples are positive	0	4	NA	No	Naturally present in the environment
Total Organic Carbon (ppm)	2010	TT	NA	NA	0.43–1.05	No	Naturally present in the environment
Turbidity[3] (NTU)	2010	TT=1	NA	0.16	0.03–0.16	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2010	TT=95% of samples<0.3	NA	100	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2010	1.3	1.3	0.025	0/40	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2010	15	0	<2	0/40	No	Corrosion of household plumbing systems; Erosion of natural deposits

[1] Variances and Exemptions (State or U.S. EPA permission not to meet an MCL or a treatment technique under certain conditions): On June 18, 2010, the Virginia Department of Health issued the City of Harrisonburg a waiver for the sampling of Diquat until December 31, 2013.

[2] The reported amount detected is the average of all samples in the current year.

[3] Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of the filtration system.

Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.